

WHAT IS CLAIMED IS:

1. A method of preparing a photopolymer, the method comprising photopolymerizing a monomer, wherein the monomer is photopolymerized in a polymer having a nanoporous structure.

2. The method of claim 1, wherein the polymer having a nanoporous structure comprises pores of about 5 nm to about 100 nm in diameter.

3. The method of claim 1, wherein the polymer having a nanoporous structure is any one of cellulose acetate, polymethylmethacrylate, polyvinylalcohol, polyvinylacetate, polystyrene, polyurethane, copolymers thereof, ionomers thereof, and mixtures thereof.

4. The method of claim 1, wherein the monomer is any one of acrylamide, methyl methacrylate, ethyl methacrylate, N,N-isopropyl acrylamide, N-vinylcarbazole, N-vinyl-2-pyrrolidone, and mixtures thereof.

5. The method of claim 1, wherein the photopolymerizing is performed in the presence of a photoinitiator, which is any one of triethanolamine, butyl hydroperoxide, fluorene, pyrene-triethylamine, acyphosphine oxide, and mixtures thereof.

6. The method of claim 1, wherein the photopolymerizing is performed in the presence of a photosensitizer, which is any one of methylene blue, 2,4,5,7-tetrabromofluorescein disodium salt, 3,3-carbonylbis diethylaminobenzopyrane, thionine, and mixtures thereof.

7. The method of claim 1, wherein the photopolymerizing is performed upon exposure to two recording beams having identical light

intensities in a range of about 2 mW/cm² to about 10 mW/cm² for about 30 seconds to about 200 seconds.

8. The method of claim 1, wherein the monomer is about 40% to about 55% by weight, said photoinitiator is about 44.9% to about 59.5% by weight, and said photosensitizer is about 0.1% to about 0.5% by weight.

9. A photopolymer prepared by the method of claim 1.